

**§ 213.63**

**49 CFR Ch. II (10–1–13 Edition)**

length of the spirals. If physical conditions do not permit a spiral long enough to accommodate the minimum length of runoff, part of the runoff may be on tangent track.

[63 FR 34029, June 22, 1998, as amended at 78 FR 16101, Mar. 13, 2013]

**§ 213.63 Track surface.**

(a) Except as provided in paragraph (b) of this section, each track owner shall maintain the surface of its track within the limits prescribed in the following table:

Track surface (inches)	Class of track				
	1	2	3	4	5
The runoff in any 31 feet of rail at the end of a raise may not be more than .....	3½	3	2	1½	1
The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than .....	3	2¾	2¼	2	1¼
The deviation from zero crosslevel at any point on tangent or reverse crosslevel elevation on curves may not be more than .....	3	2	1¾	1¼	1
The difference in crosslevel between any two points less than 62 feet apart may not be more than <sup>1, 2</sup> .....	3	2¼	2	1¾	1½
<sup>1</sup> Where determined by engineering decision prior to June 22, 1998, due to physical restrictions on spiral length and operating practices and experience, the variation in crosslevel on spirals per 31 feet may not be more than .....					
	2	1¾	1¼	1	¾

<sup>1</sup> Except as limited by § 213.57(a), where the elevation at any point in a curve equals or exceeds 6 inches, the difference in crosslevel within 62 feet between that point and a point with greater elevation may not be more than 1½ inches.

<sup>2</sup> However, to control harmonics on Class 2 through 5 jointed track with staggered joints, the crosslevel differences shall not exceed 1¼ inches in all of six consecutive pairs of joints, as created by seven low joints. Track with joints staggered less than 10 feet apart shall not be considered as having staggered joints. Joints within the seven low joints outside of the regular joint spacing shall not be considered as joints for purposes of this footnote.

(b) For operations at a qualified cant deficiency,  $E_u$ , of more than 5 inches, each track owner shall maintain the

surface of the curve within the limits prescribed in the following table:

Track surface (inches)	Class of track				
	1	2	3	4	5
The deviation from uniform profile on either rail at the mid-ordinate of a 31-foot chord may not be more than .....	N/A <sup>1</sup>	N/A <sup>1</sup>	1	1	1
The deviation from uniform profile on either rail at the mid-ordinate of a 62-foot chord may not be more than .....	2¼	2¼	1¾	1¼	1
The difference in crosslevel between any two points less than 10 feet apart (short warp) shall not be more than .....	2	2	1¾	1¾	1½

<sup>1</sup> N/A—Not Applicable.

[78 FR 16101, Mar. 13, 2013]

**§ 213.65 Combined track alignment and surface deviations.**

On any curved track where operations are conducted at a qualified cant deficiency,  $E_u$ , greater than 5

inches, the combination of alignment and surface deviations for the same chord length on the outside rail in the curve, as measured by a TGMS, shall comply with the following formula:

$$\frac{3}{4} \times \left| \frac{A_m}{A_L} + \frac{S_m}{S_L} \right| \leq 1$$

Where—

$A_m$  = measured alignment deviation from uniformity (outward is positive, inward is negative).

$A_L$  = allowable alignment limit as per § 213.55(b) (always positive) for the class of track.

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$S_m$  = measured profile deviation from uniformity (down is positive, up is negative).

$S_L$  = allowable profile limit as per §213.63(b) (always positive) for the class of track.

$$\left| \frac{A_m}{A_L} + \frac{S_m}{S_L} \right| = \text{the absolute (positive) value of the result of } \frac{A_m}{A_L} + \frac{S_m}{S_L} .$$

[78 FR 16102, Mar. 13, 2013]

**Subpart D—Track Structure**

**§213.101 Scope.**

This subpart prescribes minimum requirements for ballast, crossties, track assembly fittings, and the physical conditions of rails.

**§213.103 Ballast; general.**

Unless it is otherwise structurally supported, all track shall be supported by material which will—

- (a) Transmit and distribute the load of the track and railroad rolling equipment to the subgrade;
- (b) Restrain the track laterally, longitudinally, and vertically under dynamic loads imposed by railroad rolling equipment and thermal stress exerted by the rails;
- (c) Provide adequate drainage for the track; and
- (d) Maintain proper track crosslevel, surface, and alignment.

**§213.109 Crossties.**

- (a) Crossties shall be made of a material to which rail can be securely fastened.
- (b) Each 39-foot segment of track shall have at a minimum—
  - (1) A sufficient number of crossties that in combination provide effective support that will—
    - (i) Hold gage within the limits prescribed in §213.53(b);
    - (ii) Maintain surface within the limits prescribed in §213.63; and
    - (iii) Maintain alignment within the limits prescribed in §213.55;
  - (2) The minimum number and type of crossties specified in paragraph (b)(4) of this section and described in paragraph (c) or (d), as applicable, of this section effectively distributed to support the entire segment;

- (3) At least one non-defective crosstie of the type specified in paragraphs (c) and (d) of this section that is located at a joint location as specified in paragraph (e) of this section; and
- (4) The minimum number of crossties as indicated in the following table.

FRA track class	Tangent track, turnouts, and curves	
	Tangent track and curved track less than or equal to 2 degrees	Turnouts and curved track greater than 2 degrees
Class 1 .....	5	6
Class 2 .....	8	9
Class 3 .....	8	10
Class 4 and 5 .....	12	14

- (c) Crossties, other than concrete, counted to satisfy the requirements set forth in paragraph (b)(4) of this section shall not be—
  - (1) Broken through;
  - (2) Split or otherwise impaired to the extent the crosstie will allow the ballast to work through, or will not hold spikes or rail fasteners;
  - (3) So deteriorated that the crosstie plate or base of rail can move laterally  $\frac{1}{2}$  inch relative to the crosstie; or
  - (4) Cut by the crosstie plate through more than 40 percent of a crosstie's thickness.
- (d) Concrete crossties counted to satisfy the requirements set forth in paragraph (b)(4) of this section shall not be—
  - (1) Broken through or deteriorated to the extent that prestressing material is visible;
  - (2) Deteriorated or broken off in the vicinity of the shoulder or insert so that the fastener assembly can either pull out or move laterally more than  $\frac{3}{8}$  inch relative to the crosstie;
  - (3) Deteriorated such that the base of either rail can move laterally more than  $\frac{3}{8}$  inch relative to the crosstie on